

ABSTRACT

An improved method for the design and development of high performance hybrid devices having biological and nonbiological components. A figure of merit is developed for the biological component or components. The component is subjected to various environmental variables as it or its biological source organism is grown. The biological component is force adapted to cause its figure of merit to reach a goal or an acceptable measure. The biological component is used in hybrid constructs that may be nanostructures, given the small size of the biological parts. In one specific embodiment, force-adapted chlorosomes of *C. aurantiacus* enhance performance of a silicon photovoltaic cell. The bacteria, *Chloroflexus aurantiacus* (*C. aurantiacus*), strain J-10-f1, has the A.T.C.C. designation number 29366, having been deposited in July, 1976.